

CLAIMS:

1. A method of manufacturing a semiconductor device (10) comprising a substrate (1) and a semiconductor body (2) in which at least one semiconductor element is formed, wherein, in the semiconductor body (2), a semiconductor island (3) is formed by forming, in the surface of the semiconductor body (1), a first recess (4) the walls of which are covered with a dielectric layer (6), after which a lateral part of the semiconductor body (2) is removed by means of underetching via the bottom of the first recess, thereby forming a cavity (20) in the semiconductor body (2) above which the semiconductor island (3) is formed, and wherein a second recess (5) is formed in the surface of the semiconductor body, the walls of said second recess being covered with a further dielectric layer, and one of the walls of the second recess (5) covered with the further dielectric layer being used to form a side wall of the semiconductor island (3), characterized in that for both the dielectric layer and the further dielectric layer use is made of the same dielectric layer (6), a lateral dimension of the second recess (5) and the thickness of the dielectric layer (6) being chosen such that the second recess (5) is filled substantially completely by the dielectric layer (6), and the lateral dimensions of the first recess (4) being chosen such that the walls and the bottom of the first recess (4) are provided with a uniform coating by the dielectric layer (6).
2. A method as claimed in claim 1, characterized in that after the formation of the first and the second recess (4, 5), the dielectric layer (6) is applied over the entire surface of the semiconductor body (2), after which the flat parts of the dielectric layer (6) are removed again by means of anisotropic etching.
3. A method as claimed in claim 1 or 2, characterized in that the second recess (5) is formed as a ring-shaped groove (5) surrounding the first recess (4), within which groove the semiconductor island (3) is formed, the lateral dimension of the second recess (5) being formed by the width of the groove (5).
4. A method as claimed in claim 1, 2 or 3, characterized in that before the dielectric layer (6) is provided, further grooves (7) are formed in the surface of the

semiconductor body (2), which have approximately the same width as the groove (5), as a result of which the semiconductor island (3) is divided into semiconductor sub-islands (3A).

5. A method as claimed in claim 4, characterized in that the shape of the groove
5 (5), viewed in projection, is square, and the further grooves (7) are formed so as to extend from the middle of the sides of the square to the first recess (4) situated in the center.

6. A method as claimed in any one of the preceding claims, characterized in that
the semiconductor body (2) is formed by a semiconductor substrate (1) on which two
10 semiconductor layers (8, 9) of a different semiconductor material are provided.

7. A method as claimed in claim 6, characterized in that a first semiconductor
layer (8) of a mixed crystal of silicon and germanium is provided on a silicon substrate (1),
and a second semiconductor layer (9) of silicon is provided thereon.

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8. A method as claimed in claim 6 or 7, characterized in that to form the cavity
(20) in the semiconductor body (2) use is made of an etchant for silicon which is selective
with respect to the semiconductor material of the first semiconductor layer (8).

20 9. A method as claimed in claim 8, characterized in that after the formation of the
cavity (20), the first semiconductor layer (8) is removed by means of an etchant which is
selective with respect to the semiconductor material of the second semiconductor layer (9).

10. A method as claimed in claim 8 or 9, characterized in that during the
25 formation of the cavity (20), the etching of silicon is stopped as soon as the cavity (20) has
reached the first semiconductor layer (8), after which the latter is selectively removed.

11. A method as claimed in any one of the preceding claims, characterized in that
a lateral dimension of the cavity (20) is chosen to be so large that the cavity (20) in the
30 semiconductor body (2) extends, in this lateral direction, as far as or beyond the second
recess (5).

12. A method as claimed in any one of the preceding claims, characterized in that,
in the semiconductor body (2), a further layer (11) is formed from a different semiconductor

material than the overlying part (12) of the semiconductor body (2) in which the cavity (20) is formed.

13. A method as claimed in any one of the preceding claims, characterized in that
5 after the formation of the cavity (20), the walls thereof are covered with a different dielectric layer (30).

14. A method as claimed in any one of the preceding claims, characterized in that
10 after the formation of the cavity (20), this cavity is filled with a preferably high-ohmic material (40).

15. A method as claimed in claim 13, characterized in that the cavity (20) is filled with polycrystalline silicon.

15 16. A semiconductor device obtained by means of a method as claimed in any one of the preceding claims.